EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1548	(704/275).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:10
L2	51	l1 and multimodal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:10
L3	37	l2 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:10
L4	1676	(704/270).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:10
L5	36	l4 and multimodal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:10
L6	30	l5 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:11
L7	50	("5010495" "5386494" "5481645" "5812977" "5884265" "5890123" "5903870" "5909667" "5950167" "5974384" "5991726" "6012030" "6185535" "6233559" "6233560" "6243682" "6246989" "6266641" "6321198" "6424357" "6434526" "6438523" "20020026320" "20020133355" "20020143549").pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/05 08:12

S1	6829	IVR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/03 12:55
S2	3389	S1 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/03 12:55
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S5	308	IVR and workflow	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 07:32
S6	189	S5 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/03 12:55
S8	52	S6 and peripheral$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/03 12:58
S9	0	S8 and multimodal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/03 12:58

S10	12	IVR and workflow and multimodal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 07:33
S11	11	S10 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 07:35
S12	49	multimodal and workflow	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 07:35
S13	31	S12 and @ad < "20030711"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 07:36
S14	96	("20050010418" "20050010892" "6292830" "20060178882" "20060178886" "20060182085" "6708217" "5023953" "6910911" "7052799" "20040003136" "20040059579" "20050095899" "20050272401" "6246983" "5960400" "6026082" "5919141" "20050283532" "5761621" "5854985" "6134453" "6292828" "20020144233" "20030064709" "20030204568" "20050097311" "20040001997" "20040002243" "6031454" "20020087548" "5549104" "5959611" "5240503" "5799297" "5979118" "5832296" "5734910" "5873070" "5885083" "5825308" "5991794" "6061004" "6091832" "6232891" "6259889" "6330539" "6728692" "20060129506" "20050070337"). pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:05
S15	7	S14 and workflow	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:06

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S16	1	S14 and IVR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:06
S17	9	S14 and multimodal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:07
S18	2	S14 and multimodal and workflow	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:07
S19	0	S14 and multimodal and workflow and IVR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:07
S20	0	S14 and multimodal and IVR	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 10:07
S21	11	(US-20010049603-$ or US-20040083479-$ or US-20030097413-$ or US-20060178886-$ or US-20050283532-$ or US-20030064709-$ or US-20020144233-$).did. or (US-7039166-$ or US-6937705-$ or US-6636587-$ or US-6330539-$).did.	US-PGPUB; USPAT	OR	OFF	2007/01/04 13:58
S22	6	S21 and prompt$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 14:00

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S23	0	S21 and prompt$1 and GUI	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/01/04 14:01

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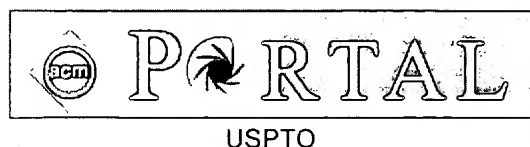
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1 Poster Session 1: From vocal to multimodal dialogue management   ☐
◈ Miroslav Melichar, Pavel Cenek
November 2006 **Proceedings of the 8th international conference on Multimodal interfaces ICMI '06**
Publisher: ACM Press
Full text available: 🗎 pdf(428.20 KB)   Additional Information: full citation, abstract, references, index terms

Multimodal, speech-enabled systems pose different research problems when compared to unimodal, voice-only dialogue systems. One of the important issues is the question of how a multimodal interface should look like in order to make the multimodal interaction natural and smooth, while keeping it manageable from the system perspective. Another central issue concerns algorithms for multimodal dialogue management. This paper presents a solution that relies on adapting an existing unimodal, vocal dia ...

Keywords: Wizard of Oz, dialogue management, dialogue systems, graphical user interface (GUI), human computer interaction (HCI), multimodal systems, rapid dialogue prototyping

2 Component-based multimodal dialog interfaces for mobile knowledge creation   ☐
Georg Niklfeld, Robert Finan, Michael Pucher
July 2001 **Proceedings of the workshop on Human Language Technology and Knowledge Management - Volume 2001**
Publisher: Association for Computational Linguistics
Full text available: 🗎 pdf(55.75 KB)   Additional Information: full citation, abstract, references

This paper addresses two related topics: Firstly, it presents building-blocks for flexible multimodal dialog interfaces based on standardized components (VoiceXML, XML) to indicate that thanks to well-supported standardizations, mobile multimodal interfaces to heterogeneous data sources are becoming ready for mass-market deployment, provided that adequate modularization is respected. Secondly, this is put in the perspective of a discussion of knowledge management in firms, and the paper argues t ...

3 Evaluating accessibility: The information-theoretic analysis of unimodal interfaces   ☐
◈ and their multimodal counterparts
Melanie Baljko
October 2005 **Proceedings of the 7th international ACM SIGACCESS conference on Computers and accessibility Assets '05**

Publisher: ACM Press

Full text available: pdf(300.86 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

That multimodal interfaces have benefits over unimodal ones has often been asserted. Several such benefits have been described informally, but, to date, few have actually been formalized or quantified. In this paper, the hypothesized benefits of *semantically redundant multimodal input actions* are described formally and are quantified using the formalisms provided by Information Theory. A reinterpretation of Keates and Robinson's empirical data (1998) shows that their criticism of multimod ...

Keywords: augmentative and alternative communication (AAC), interface evaluation, interventions for communication disorders, multimodal interfaces, speech generating devices (SGD), voice output communication aids (VOCA)

4   <u>Tangible interfaces and universal access: The contrastive evaluation of unimodal and multimodal interfaces for voice otput communication aids</u>

Melanie Baljko

October 2005 **Proceedings of the 7th international conference on Multimodal interfaces ICMI '05**

Publisher: ACM Press

Full text available: pdf(286.39 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

For computational Augmentative and Alternative Communication (AAC) aids, it has often been asserted that multimodal interfaces have benefits over unimodal ones. Several such benefits have been described informally, but, to date, few have actually been formalized or quantified. In this paper, some of the special considerations of this application domain are described. Next, the hypothesized benefits of *semantically nonredundant multimodal input actions* over unimodal input actions are descr ...

Keywords: augmentative and alternative communication (AAC), interventions for communication disorders, multimodal interfaces, speech generating devices (SGD), voice output communication aids (VOCA)

5   <u>Posters: A user interface framework for multimodal VR interactions</u>

Marc Erich Latoschik

October 2005 **Proceedings of the 7th international conference on Multimodal interfaces ICMI '05**

Publisher: ACM Press

Full text available: pdf(507.59 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

This article presents a User Interface (UI) framework for multimodal interactions targeted at immersive virtual environments. Its configurable input and gesture processing components provide an advanced behavior graph capable of routing continuous data streams asynchronously. The framework introduces a Knowledge Representation Layer which augments objects of the simulated environment with Semantic Entities as a central object model that bridges and interfaces Virtual Reality (VR) and Artificial ...

Keywords: gesture and speech processing, multimodal interaction, semantic scene description, user interface framework, virtual reality

6   <u>A model for multimodal reference resolution</u>

Luis Pineda, Gabriela Garza

June 2000 **Computational Linguistics,** Volume 26 Issue 2

Publisher: MIT Press

Full text available: pdf(3.60 MB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>
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An important aspect of the interpretation of multimodal messages is the ability to identify when the same object in the world is the referent of symbols in different modalities. To understand the caption of a picture, for instance, one needs to identify the graphical symbols that are referred to by names and pronouns in the natural language text. One way to think of this problem is in terms of the notion of anaphora; however, unlike linguistic anaphoric inference, in which antecedents for pronou ...

7 Posters: Modeling multimodal integration patterns and performance in seniors: toward adaptive processing of individual differences

Benfang Xiao, Rebecca Lunsford, Rachel Coulston, Matt Wesson, Sharon Oviatt
November 2003 **Proceedings of the 5th international conference on Multimodal interfaces**
Publisher: ACM Press

Full text available: pdf(336.43 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

Multimodal interfaces are designed with a focus on flexibility, although very few currently are capable of adapting to major sources of user, task, or environmental variation. The development of adaptive multimodal processing techniques will require empirical guidance from quantitative modeling on key aspects of individual differences, especially as users engage in different types of tasks in different usage contexts. In the present study, data were collected from fifteen 66- to 86-year-old heal ...

Keywords: human performance errors, multimodal integration, self-regulatory language, senior users, speech and pen input, task difficulty

8 User tests and multimodal gesture: Capturing user tests in a multimodal, multidevice informal prototyping tool

Anoop K. Sinha, James A. Landay
November 2003 **Proceedings of the 5th international conference on Multimodal interfaces**
Publisher: ACM Press

Full text available: pdf(413.56 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>, <u>review</u>

Interaction designers are increasingly faced with the challenge of creating interfaces that incorporate multiple input modalities, such as pen and speech, and span multiple devices. Few early stage prototyping tools allow non-programmers to prototype these interfaces. Here we describe CrossWeaver, a tool for informally prototyping multimodal, multidevice user interfaces. This tool embodies the informal prototyping paradigm, leaving design representations in an informal, sketched form, and create ...

Keywords: informal prototyping, mobile interface design, multidevice, multimodal, pen and speech input, sketching

9 Attention and integration: Toward a theory of organized multimodal integration patterns during human-computer interaction

Sharon Oviatt, Rachel Coulston, Stefanie Tomko, Benfang Xiao, Rebecca Lunsford, Matt Wesson, Lesley Carmichael
November 2003 **Proceedings of the 5th international conference on Multimodal interfaces**
Publisher: ACM Press

Full text available: pdf(286.21 KB)   Additional Information: full citation, abstract, references, citings, index terms

As a new generation of multimodal systems begins to emerge, one dominant theme will be the integration and synchronization requirements for combining modalities into robust whole systems. In the present research, quantitative modeling is presented on the organization of users' speech and pen multimodal integration patterns. In particular, the potential malleability of users' multimodal integration patterns is explored, as well as variation in these patterns during system error handling and tasks ...

Keywords: Gestalt theory, co-timing, entrenchment, error handling, multimodal integration, speech and pen input, task difficulty

10 Joint session with UIST: Mutual disambiguation of 3D multimodal interaction in augmented and virtual reality
Ed Kaiser, Alex Olwal, David McGee, Hrvoje Benko, Andrea Corradini, Xiaoguang Li, Phil Cohen, Steven Feiner
November 2003 **Proceedings of the 5th international conference on Multimodal interfaces**
Publisher: ACM Press

Full text available: pdf(369.73 KB)   Additional Information: full citation, abstract, references, citings, index terms

We describe an approach to 3D multimodal interaction in immersive augmented and virtual reality environments that accounts for the uncertain nature of the information sources. The resulting multimodal system fuses symbolic and statistical information from a set of 3D gesture, spoken language, and referential agents. The referential agents employ visible or invisible volumes that can be attached to 3D trackers in the environment, and which use a time-stamped history of the objects that intersect ...

Keywords: augmented/virtual reality, evaluation, multimodal interaction

11 Interacting through different modalities: Visual display, pointing, and natural language: the power of multimodal interaction
Antonella De Angeli, Walter Gerbino, Giulia Cassano, Daniela Petrelli
May 1998 **Proceedings of the working conference on Advanced visual interfaces**
Publisher: ACM Press
Full text available: pdf(1.56 MB)   Additional Information: full citation, abstract, references

This paper examines user behavior during multimodal human-computer interaction (HCI). It discusses how pointing, natural language, and graphical layout should be integrated to enhance the usability of multimodal systems. Two experiments were run to study simulated systems capable of understanding written natural language and mouse-supported pointing gestures. Results allowed to: (a) develop a taxonomy of communication acts aimed at identifying targets; (b) determine the conditions under which sp ...

Keywords: cross-modal integration, referent identification strategies

12 Commerce and Businesses: A voice and ink XML multimodal architecture for mobile e-commerce systems
Zouheir Trabelsi, Sung-Hyuk Cha, Darshan Desai, Charles Tappert
September 2002 **Proceedings of the 2nd international workshop on Mobile commerce**
Publisher: ACM Press

Full text available: pdf(445.55 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>index terms</u>

This paper presents a multimodal interface architecture that combines standardized voice and ink formats to facilitate the creation of robust and efficient multimodal mobile e-Commerce systems, particularly for noisy mobile environments. The platform provides a Web interactive system for generic multimodal application development. By providing mutual disambiguation of input signals and superior error handling this architecture should broaden the spectrum of users to the general population, inclu ...

Keywords: InkXML, VoiceXML, handwriting recognition, multimodal applications, mutual disambiguation, speech recognition

13 Multimodal error correction for speech user interfaces

Bernhard Suhm, Brad Myers, Alex Waibel
March 2001 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 8 Issue 1
Publisher: ACM Press

Full text available: pdf(244.34 KB)   Additional Information: <u>full citation</u>, <u>abstract</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

Although commercial dictation systems and speech-enabled telephone voice user interfaces have become readily available, speech recognition errors remain a serious problem in the design and implementation of speech user interfaces. Previous work hypothesized that switching modality could speed up interactive correction of recognition errors. This article presents multimodal error correction methods that allow the user to correct recognition errors efficiently without keyboard input. Correcti ...

Keywords: dictation systems, interactive error correction, multimodal interfaces, pen input, performance model, speech input, speech user interfaces

14 Multimodal system processing in mobile environments

Sharon Oviatt
November 2000 **Proceedings of the 13th annual ACM symposium on User interface software and technology**
Publisher: ACM Press

Full text available: pdf(579.32 KB)   Additional Information: <u>full citation</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>

Keywords: mobile interface design, multimodal architecture, mutual disambiguation, recognition errors, robust performance, speech and pen input

15 Taming recognition errors with a multimodal interface

Sharon Oviatt
September 2000 **Communications of the ACM**, Volume 43 Issue 9
Publisher: ACM Press

Full text available: pdf(493.57 KB)   Additional Information: <u>full citation</u>, <u>references</u>, <u>citings</u>, <u>index terms</u>, <u>review</u>
html(35.95 KB)

16 Perceptual user interfaces: multimodal interfaces that process what comes naturally

Sharon Oviatt, Philip Cohen
March 2000 **Communications of the ACM**, Volume 43 Issue 3

Publisher: ACM Press
Full text available: pdf(256.26 KB)   Additional Information: full citation, references, citings, index terms
html(38.29 KB)

17 Ten myths of multimodal interaction

Sharon Oviatt
November 1999 **Communications of the ACM**, Volume 42 Issue 11
Publisher: ACM Press
Full text available: pdf(567.63 KB)   Additional Information: full citation, references, citings, index terms,
html(37.89 KB)   review

18 Model-based and empirical evaluation of multimodal interactive error correction

Bernhard Suhm, Brad Myers, Alex Waibel
May 1999 **Proceedings of the SIGCHI conference on Human factors in computing
systems: the CHI is the limit**
Publisher: ACM Press

Full text available: pdf(1.07 MB)   Additional Information: full citation, abstract, references, citings, index
terms

Our research addresses the problem of error correction in speech user interfaces. Previous
work hypothesized that switching modality could speed up interactive correction of
recognition errors (so-called multimodal error correction). We present a user study that
compares, on a dictation task, multimodal error correction with conventional interactive
correction, such as speaking again, choosing Tom a list, and keyboard input. Results show
that multimodal correction is faster than conve ...

Keywords: interactive error correction, multimodal interaction, quantitive performance
model, speech and pen input, speech user interfaces

19 QuickSet: multimodal interaction for distributed applications

Philip R. Cohen, Michael Johnston, David McGee, Sharon Oviatt, Jay Pittman, Ira Smith,
Liang Chen, Josh Clow
November 1997 **Proceedings of the fifth ACM international conference on Multimedia**
Publisher: ACM Press
Full text available: pdf(1.65 MB)   Additional Information: full citation, references, citings, index terms

Keywords: agent architecture, distributed interactive simulation, gesture recognition,
multimodal interfaces, natural language processing, speech recognition

20 Integration and synchronization of input modes during multimodal human-computer
interaction

Sharon Oviatt, Antonella DeAngeli, Karen Kuhn
March 1997 **Proceedings of the SIGCHI conference on Human factors in computing
systems**
Publisher: ACM Press
Full text available: pdf(1.18 MB)   Additional Information: full citation, references, citings, index terms

Keywords: dynamic interactive maps, integration and synchronization, multimodal interaction, predictive modeling, spatial location information, speech and pen input

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From:	Dorvil, Richemond
Sent:	Wednesday, December 06, 2006 11:14 AM
To:	Zhen, Wei
Cc:	Wang, Philip R.
Subject:	RE: 10/617422 -- help with transfer

Not suitable for 704 or 704/255. Claims 1 is dealing with interaction between software applications, there is no processing of signal. I believe claim 1 should be classified somewhere in 717 or 703/23. Claim 3 recites that the peripheral devices include speech synthesizer or speech recognition but they are just that peripheral devices and is insufficient to make it a subject matter for class 704, the same way claim 4 recites a screen does not make it the subject matter for class 345. If I missed something, let me know or send the examiner over to see one of the primaries or myself. Thanks --

Rich Dorvil
SPE, Speech Division 2626
(571)-272-7602

> -----Original Message-----
> **From: Zhen, Wei**
> **Sent:** Wednesday, December 06, 2006 9:34 AM
> **To:** Zhen, Wei; Dorvil, Richemond
> **Cc:** Wang, Philip R.
> **Subject:** RE: 10/617422 -- help with transfer
>
> Richemond,
>
> Do you have an update on this? Thanks for your help.
>
> Wei Zhen
>
>> -----Original Message-----
>> **From:** Zhen, Wei
>> **Sent:** Tuesday, November 14, 2006 4:35 PM
>> **To:** Dorvil, Richemond
>> **Subject:** FW: 10/617422 -- help with transfer
>>
>> Richemond,
>>
>> Could you please reconsider this case for restriction requirement? Claims 23-33 will be classified under 717, Could 1-22 and 34 be classified in 704/255 (this is very similar to 10/617,593 which is currently under your docket)? Thank you for your help.
>>
>> Wei Zhen
>> SPE 2191
>>
>>> -----Original Message-----
>>> **From:** Steelman, Mary
>>> **Sent:** Tuesday, November 14, 2006 4:28 PM
>>> **To:** Zhen, Wei
>>> **Subject:** RE: 10/617422 -- help with transfer
>>>
>>> This case is very similar to 10 617593 which is docketed to 2626 704/255.
>>>
>>> Claim 23-33 are directed towards "developing...applications...", but 1-22 & 34 are for executing speech processing.
>>>
>>> Seems like same examiner should do them all, and restrict the "developing...application claims"

1

Both applications have a PCT related to them.

Mary